Universal SEL Implementation to Improve Community and Prosocial Skills: A Pilot Study

Sara C. McDaniel, Gerta Bardhoshi, and D. Martin Kivlighan

Abstract

In the past several years, social and emotional learning (SEL) has become a widely discussed and more frequently addressed area of need in schools. SEL curricula can enhance behavioral practices at the universal tier to be able to comprehensively address the social, emotional, and behavioral needs in school buildings. With the COVID-19 pandemic, these SEL needs have become more pronounced. This case example presents a pilot evaluation of the *Open Circle* SEL curriculum implementation, delivered universally, at Tier 2 for all students. Universal SEL instruction was conducted weekly across an entire elementary school in the southeastern United States which had other universal, preventative strategies in place. Across the year, pre- and post-implementation teacher ratings of student SEL skills and teacher perceptions of school climate and school-level descriptive outcomes (e.g., academic achievement, office discipline referrals, attendance) were evaluated. Results indicated that the universal SEL implementation yielded differential effectiveness noted by grade level, with the intervention being more effective in increasing prosocial skills for third grade students. There were also moderate improvements in teacher perceptions of school climate and the school-level variables across grade levels. Implications for future research and practice are presented.

Key Words: social and emotional learning, elementary students, prevention, prosocial skills, community, *Open Circle*, universal SEL implementation

Introduction

Most teachers, families, and students consider the purpose of K–12 schooling first and foremost as improving academic skills. However, a recent shift toward considering and educating across the social and emotional learning (SEL) domains has come into focus, with increasing evidence that targeting SEL competencies and behavioral skills in elementary students, including self-management, self-awareness, problem solving, and relationship skills, can enhance school and life success (Bradshaw et al., 2009; Denham et al., 2012). Educators have identified SEL skills as impacting engagement with academic instruction, improving attendance, and increasing overall connectedness to school. Thus, SEL can serve as a foundation for academic achievement and performance, with such intervention being especially effective with younger students (Bradshaw et al., 2009; Denham et al., 2012; January et al., 2011).

In order to maximize the effectiveness of interventions targeting SEL domains, studies have also emphasized the importance of approaching school-based interventions from a systemic community focus (Greenberg et al., 2003; Oberle et al., 2016). High quality implementation of interventions targeting social–emotional competencies and behavioral skills necessitates paying attention to context, including a broad understanding of the school system and community in which students are embedded (Low et al., 2016). Identifying multidimensional factors that may intersect at the individual, family, school, and community levels, like school climate and school absenteeism (Kim & Gentle-Genitty, 2020), can be an important step in selecting appropriate SEL interventions and maximizing engagement (Low et al., 2016).

SEL has come into focus as a priority in the past decade (Rivas-Drake et al., 2020; Voith et al., 2020). The Collaborative for Academic, Social, and Emotional Learning (CASEL; 2013), a national organization providing technical assistance to educators, defines SEL as instructional practices that promote understanding and managing emotions, prosocial behavior in positive relationships, teaching goal setting, and making responsible decisions. Student outcomes related to SEL universal instruction have led to improvements in youth mental health and improved developmental trajectories on a range of social–emotional and well-being indicators (Durlak et al., 2011; Taylor et al., 2017).

SEL Curricula

Several evidence-based SEL curricula are nimble enough to be implemented at both the universal (schoolwide) and targeted tiers. Although the majority of studies evaluating SEL programming have traditionally focused on student

outcomes (e.g., SEL skills, academic achievement), a growing body of research suggests that SEL has an important impact beyond student-level outcomes (Stillman et al., 2018). Indeed, school climate and an overall sense of community can be directly improved by effective SEL implementation (Gregory et al., 2016) and is associated with students' social development and positive life outcomes (Garibaldi et al., 2015). A positive school climate impacts all stakeholders, including teachers, and is associated with decreased teacher turnover (Kraft et al., 2016). Teacher perceptions of school climate and their beliefs on the perceived impact of SEL are important factors when evaluating the efficacy of SEL programming (Domitrovich et al., 2008).

Choosing SEL Programs

Despite the availability of several SEL programs with CASEL (2020) endorsement for universal implementation, many schools face significant practical barriers that negatively impact effective implementation. First, many schools lack the essential funds and personnel needed for universal implementation, creating feasibility issues for even the most thorough SEL programming. For instance, if the program is intended to be delivered by the school counselor, not the classroom teacher, there may not be enough school counselors to feasibly deliver the intervention. Second, schools may also hesitate to implement such programs due to competing curriculum demands and priorities, perceptions of lack of applicability to the current school environment, and perceptions of low readiness from teachers and administrators (Oberle et al., 2016; Wanless & Domitrovich, 2015; Zins et al., 2004). Even when schools are able to overcome such barriers and establish evidence-based SEL programing, common implementation translation and adoption issues such as consistency and fidelity create a sizable research-to-practice gap regarding the effectiveness of such programming (Domitrovich et al., 2008; Oberle et al., 2016). Low student engagement is another common barrier in effectively implementing SEL programs, with student interest and participation in program lessons being particularly important for SEL programming (Low et al., 2016).

With the adoption and installation of any new program or intervention, schools should utilize research-based interventions that match their specific school needs and are feasible and cost effective. These elements are also essential for creating teacher and administrator buy-in. CASEL outlines the following adoption and installation guidelines for choosing an SEL program: (a) involve stakeholders; (b) implement SEL universally, for all students; and (c) address local barriers and strengths by tailoring the adoption and installation of SEL programs. For this intervention, we selected *Open Circle,* a promising SEL universal program for Grade K–5 students that aims to develop children's

skills for recognizing and managing emotions and promoting empathy, positive relationships, and problem solving (Hennessey, 2007). *Open Circle* meets adoption criteria as it (a) extensively addresses contexts that promote and reinforce SEL beyond the classroom, including the school, family, and community; (b) can be implemented universally for all students; and (c) aligns well with schoolwide systems implementation with universal and targeted supplementary lessons available, facilitating meaningful adoption for our target school.

Purpose

Given the emerging area of SEL program delivery at the universal, schoolwide level and varying SEL programs available, further research is warranted regarding implementation variables and effectiveness.

Research Question 1: To what degree can schools implement universal SEL as a universal practice with fidelity?

Research Question 2: How does universal *Open Circle* implementation change teacher ratings of student SEL skills?

Research Question 3: How do individual student SEL skills within a single classroom affect the social, emotional, and behavioral outcomes of other students in the same classroom?

Method

Setting

The pilot study was conducted using a one group pre–post test design in a large, public, urban school in the southeastern U.S. The school served 537 students, with race/ethnicity reported as 65% White, 21% Black/African American, and 15% Hispanic. In terms of socioeconomic status, 35% were identified as economically disadvantaged and received free or reduced-price lunch. The school setting was selected due to established implementation of positive behavioral interventions and supports (PBIS; Lewis & Sugai, 1999) Tiers 1 and 2 with fidelity and an ongoing climate and discipline problem that required intervention. Three years prior to the intervention, the school completed Tier 1 PBIS training and a year of in-person ongoing coaching. The school-developed expectations were "SOAR: Safety first, Own your own actions, Act responsibly, and Respect others." The next year the school received Tier 2 training and coaching. The school was eager to adopt this new system and implemented both tiers with fidelity, according to the Tiered Fidelity Inventory (TFI; Algozzine et al., 2014). Their TFI Tier 1 assessment after the Tier 1 focus year was 97% fidelity, and the Tier 2 TFI score was 81% fidelity,

both exceeding the 70% fidelity threshold for improved outcomes. Although their fidelity of implementation was high across three years of Tier 1 and two years of Tier 2, the administrator noted ongoing difficulties with disrespectful behaviors in the building. See Table 1 for schoolwide demographics and data. Specifically, the year prior to the current study there were 16 major infractions for disorderly conduct involving students and teachers. Another rationale for adding universal SEL in this building was that the school was serving more than 10% of the total population at Tier 2, creating a burden on all educators. Other, more distal rationale with ongoing issues in the building were high chronic absenteeism (i.e., more than 10 days absent per year) and low overall academic performance. In the year prior to the study, only 42% of the students were academically proficient according to the state reporting calculation across domains (state average is 46.5%), and 23% were chronically absent (much higher than the state average of 12.5% and national average of 13%). No further data were available to explain these rates, although poor family engagement and school climate may have been contributing factors.

Table 1. School Demographics and Schoolwide Data

Year	Total Students	ODR/student percentage	# of Disorderly Infractions	Chronic Absenteeism Rate	Academic Proficiency Score
Baseline 1 PBIS Tier 1	502	3%	0	NR	ND
Baseline 2 PBIS Tier 1	538	3%	6	10.99%	73.48%
Baseline 3 PBIS Tier 1 & 2	514	5%	16	15.60%	68.63%
Intervention	537	6%	10	6.82%	70.70%

Procedure

Training

Given the universal implementation of *Open Circle*, all classroom teachers were provided with a grade-level kit and direct training. A full day of training was provided by *Open Circle* training personnel. This training detailed the rationale for the intervention, reviewed the content and scope and sequence across all grade levels, and focused specifically on teaching procedures and grade-specific kit materials, activities, and requirements. The training was also attended by the principal and assistant principal who monitored the classroom teachers for understanding. *Open Circle* provided two coaching sessions during the first month of implementation for all classroom teachers; further coaching was not required per the principal and assistant principal who determined that local building-level support throughout the year was sufficient.

SEL Intervention

The *Open Circle* curriculum can be implemented either universally for all students or in a targeted approach with 36 supplementary lessons. *Open Circle* is designed to be implemented across a full year, ongoing throughout each year. This approach maintains sustained instruction and scaffolds lessons across grade levels across elementary school. The classroom lessons for the elementary levels provide initial skill development and practice activities to teach foundational social and emotional skills and support performance of newly learned skills. The classroom teacher leads students in weekly, 20–40 minute lessons that reinforce necessary social–emotional skills for school, community, and home. Elementary lessons focus on foundational skills which are differentiated to age level. Example lessons include: calm breathing, speaking up, and positive self-talk. Lesson materials include posters, scripted lesson plans, reflection worksheets, bookmarks, a timer, chimes, and stickers. Activities embed culturally responsive practices, children's literature, and mindfulness strategies. Classroom teachers are also expected to integrate the SEL components taught throughout their day and communicate those new skills to families/caregivers. In an effort to integrate *Open Circle* universally for all students, the educators designed a strategy to integrate new SEL skills (e.g., sharing, taking turns, showing empathy, disagreeing respectfully) and framing them within the teaching and reinforcement of their Tier 1 PBIS expectations (SOAR, listed above). In doing so, educators were able to continue to use one common, consistent language with their students around social, emotional, and behavioral expectations and performance. This approach is aligned with recommendations to leverage existing PBIS teaching systems to extend to SEL teaching (Abshier et al., 2020). Specifically, the target school did not adopt an "either/or" approach where one intervention (e.g., PBIS) was abandoned and another adopted. Instead, they took a thoughtful, integrated approach to add SEL to their existing PBIS framework based on data that indicated an ongoing need to improve SEL skills for most students.

SEL Delivery

Throughout pre-planning, training, and implementation, *Open Circle* was presented as an integrated component to universal PBIS implementation that was already in place. Integration was reinforced in several ways: (a) consistent, aligned vocabulary; (b) integrated teaming; (c) comprehensive and frequent staff reminders; and (d) alignment of data systems. First, the schoolwide SOAR expectations, particularly "responsibility" and "respect," were directly and consistently aligned with *Open Circle* lesson content. The SEL curriculum explicitly taught social problem solving, cooperative behavior, and emotional and behavioral regulation in line with SOAR expectations. Second, both PBIS Tier

1 and *Open Circle* implementation were discussed at monthly combined team meetings. During these meetings educators discussed gaps in implementation and strategies to improve fidelity across both PBIS and universal SEL. Third, the principal regularly highlighted the importance of integrating PBIS and SEL (e.g., staff meeting reminders, email prompts) across all grade levels and all school staff. Finally, the integrated PBIS and SEL team discussed school-level data (e.g., office discipline referrals, attendance, suspensions) during their monthly meetings and integrated the ratings of student SEL skills and their level of fidelity from *Open Circle* integration.

Measures

Fidelity

The Curriculum Implementation Tool is a 21-item teacher-report instrument used to comprehensively measure the quality of implementation of the *Open Circle* curriculum. Teachers reflect on their lesson *quality* across implementation facets, including *Open Circle* Meeting frequency, duration, structure, and content on a four-point Likert scale ranging from 0 = Never to 3 = Always. Sample items include, "I take some time to prepare each lesson," and "I model Open Circle skills and vocabulary during Open Circle meetings." Teachers complete each item at the end of the first semester and again at the end of the second semester. Teachers also had to self-report the *quantity* of *Open Circle* instructional delivery by reporting (1) average length of each lesson, and (2) average weekly frequency of lessons.

SEL Skills Class Assessment

The SEL Skills Class Assessment (SELS-CA) is a 21-item teacher-report instrument used to measure teacher perceptions of school-aged students' social skills. A total score is generally used for interpretive purposes, with items rated on a four-point Likert scale ranging from 0 = Never to 3 = Always. Sample items include, "My students can track how their feelings change throughout the day," and "My students cooperate with others." As the SELS-CA was developed primarily for practical purposes in evaluating the success of the *Open Circle* program, it lacked initial psychometric data. Therefore, we used data from this study to examine the structural validity and reliability of this scale and to identify essential items and subscales that could be used for a more nuanced interpretation (Bardhoshi et al., 2022). Factor analytic procedures revealed a robust three-factor structure, supporting the use of 19 items consisting of three subscales: (1) Strategies for Emotional/Behavioral Regulation, (2) Cooperative Behaviors, and (3) Prosocial Skills (Bardhoshi et al., 2022). Cronbach's αs with this sample were .78 for Strategies for Emotional/Behavioral

Regulation, .73 for Cooperative Behaviors, .60 for Prosocial Skills, and .86 for the total scale, indicating a good internal consistency. The construct validity of the SELS-CA based on a six-factor solution was also supported by the study of Brand et al. (2008). In the current study, 37 teachers completed the school climate inventory before the intervention, whereas 21 teachers completed it after the intervention. The alpha coefficients were .46 to .79 for the subscales and .71 for the total scale. Pearson correlation coefficients between the subscales varied from -.25 to .57, as Brand et al. (2008) reported -.45 to .65.

Teacher Ratings of School Climate

The Inventory of School Climate–Teacher version (ISC–T; Brand et al., 2008) is a 29-item teacher-based measure designed to assess various dimensions of school climate that are supported by literature as relevant to students' well-being. The 29 items are divided into six subscales: (1) Peer Sensitivity, (2) Disruptiveness, (3) Teacher–Student Interactions, (4) Achievement Orientation, (5) Support for Cultural Pluralism, and (6) Safety Problems. Each subscale has four to five items, and each item is rated on a 1 to 5 frequency Likert-scale (1 = never; 5 = always). This survey was given pre- and post-intervention to all educators (e.g., classroom teacher, school counselor, paraprofessionals), without participant identification, given the personal nature of the items. The ISC is considered a reliable measure for assessing teacher perceptions of school climate, with αs ranging from .57 to .86 for the subscales and .89 for the total scale (Brand et al., 2008).

School-Level Outcomes

Descriptive data were compared on variables identified by the school as areas for improvement: (1) chronic absenteeism, (2) behavioral infractions, and (3) overall academic achievement (see Table 1). These data were collected from the statewide database of mandated reported data and are reported as comparative percentages across the year prior to intervention and the intervention year.

Data Analysis

Pertaining to the implementation of the SEL program within the PBIS framework, we calculated Cohen's *d* as a metric of pre-post change on all outcome measures, applying Cohen's (1988) effect size interpretive ranges (small effect = .30; medium effect = .50; large effect = .67). We used the following formula to calculate Cohen's *d* while controlling for the intercorrelation of repeated measures.

$$\frac{m_1 - m_2}{\sqrt{{s_1}^2 + {s_2}^2 - (2rs_1s_2)}}$$

Third, we utilized multilevel modeling (MLM) to control for the dependency of data from multiple students within the same classroom as well as test for classroom effects on students' outcomes. Specifically, we ran an empty model predicting students' post-intervention outcomes controlling for their pre-intervention scores to examine the amount of variability in students' adjusted pre-post scores at level-2 (i.e., classroom effects). The Interclass Correlation Coefficient (ICC) was calculated, which represents the proportion of variability in students' adjusted pre-post scores at the group level (i.e., classroom effects). Finally, we tested the differential effectiveness of the SEL intervention by grade level. Specifically, we ran a two-level model where grade level was entered as a level-2 fixed effect as a predictor of a student's adjusted post-treatment outcome. All random effects were included in the model.

Results

Fidelity

According to the Curriculum Implementation checklist that measured quality of implementation on specific lesson components, classroom teachers reported teaching lessons on average two times per week with each lesson lasting between an average of 16–20 minutes. Across all grade levels, implementation on the 18 quality items measuring core *Open Circle* lesson activities was 74% (see Table 2). Implementation on the quality items measuring extending activities (i.e., assigning an extra book, homework, sending a letter home) was 67%. Further, the school administrator required permanent product lesson plans and schedules including *Open Circle* lesson times and dates. The administrator also conducted quarterly observations for each teacher. Administrator report pertaining to fidelity identified that 95% of all classroom teachers scheduled and held the minimum one lesson per week, with only one teacher who did not implement the minimum one lesson per week. Table 2 provides details on fidelity by grade level.

Student SEL Outcomes

Prior to testing the differential effectiveness of the *Open Circle* intervention by grade level, we examined the effectiveness of the intervention on student-level outcomes descriptively (see Table 3). Pre- and post-intervention scores on the Strategies for Emotional/Behavioral Regulation subscale were 18.63 (*SD* = 5.48) and 18.88 (*SD* = 4.95), respectively. Pre- and post-intervention scores on the Cooperative Behaviors subscale were 11.48 (*SD* = 2.75) and 11.50 (*SD* = 2.45), respectively. Pre- and post-intervention scores on the Prosocial Skills subscale were 7.61 (*SD* = 2.55) and 7.85 (*SD* = 2.34), respectively. Pre- and

post-intervention total scores for the SEL Skills Inventory were 37.76 (*SD* = 9.20) and 38.38 (*SD* = 8.05), respectively. Pre-post Cohen's *d* for the SEL Skills total scale, Strategies for Emotional/Behavioral Regulation subscale, Cooperative Behaviors subscale, and Prosocial Skills subscale were 0.06, 0.04, 0.01, and 0.07, respectively, which all represent small effects. It should be noted that Cohen's *d* is not meant to be a rigid indicator of effect size, and nuanced interpretations of effect size in intervention research should take into account both previous results on specific outcomes and the potential impact of outcomes on the setting of the intervention (Durlak, 2009).

Table 2. Classrooms and Fidelity by Grade

	# of Classrooms per Grade	Average Fidelity on Primary Items	Average Lesson Length (minutes)	Average Lesson Number per Week
Kindergarten	3	55%	NR	2
1st	4	85%	16–20	2
2nd	3	83%	16–20	2
3rd	4	83%	16–20	2
4th	4	72%	16–20	2
5th	4	72%	16–20	2

Table 3. Descriptive Statistics for Students' SEL Outcomes.

	Pre-SEL			Post-SEL			
	N	*M*	*SD*	*N*	*M*	*SD*	*d*
Strategies for Emotional/ Behavioral Regulation	219	18.63	5.48	231	18.88	4.95	0.04
Cooperative Behaviors	231	11.48	2.75	242	11.50	2.45	0.01
Prosocial Skills	233	7.61	2.55	247	7.85	2.34	0.07
Total Score	207	37.76	9.20	214	38.38	8.05	0.06

SEL outcomes were predicted to vary by grade level. Table 4 presents these descriptive statistics which indicate mean score improvement across time in some grade levels (i.e., Grade 3, Grade 4), and declining scores in others (i.e., Grade 2, Grade 5).

Table 4. Descriptive Statistics for Students' SEL Outcomes by Grade Level

	Pre-SEL			Post-SEL			
	N	*M*	*SD*	*N*	*M*	*SD*	*d*
2nd Grade							
Strategies for Emotional/ Behavioral Regulation	53	18.43	4.74	59	18.15	4.50	0.05
Cooperative Behaviors	55	11.18	2.80	65	11.34	2.64	0.05
Prosocial Skills	57	7.14	2.52	65	7.68	2.42	0.18
Total Score	49	36.90	7.35	54	36.89	7.14	0.00
3rd Grade							
Strategies for Emotional/ Behavioral Regulation	31	17.16	5.71	44	19.75	5.57	0.38
Cooperative Behaviors	34	10.74	3.31	46	11.63	2.49	0.21
Prosocial Skills	32	6.97	3.04	47	7.91	2.34	0.24
Total Score	30	34.93	10.45	42	40.00	8.59	0.38
4th Grade							
Strategies for Emotional/ Behavioral Regulation	73	17.85	5.61	63	18.13	4.80	0.04
Cooperative Behaviors	77	11.30	2.74	66	11.11	2.51	0.06
Prosocial Skills	79	7.57	2.56	70	7.34	2.38	0.07
Total Score	71	36.69	9.70	58	36.98	7.78	0.03
5th Grade							
Strategies for Emotional/ Behavioral Regulation	62	20.47	5.46	65	19.68	4.95	0.11
Cooperative Behaviors	65	12.32	2.20	65	11.98	2.09	0.11
Prosocial Skills	65	8.38	2.13	65	8.51	2.11	0.04
Total Score	57	41.33	8.45	60	39.93	8.37	0.12

Our analysis of classroom effects indicated that classroom significantly accounted for 7% of the variability in students' adjusted Prosocial Skills (ICC = 0.07, α^2 = 23.81, p = .014) and 6% of the variability in students' adjusted Strategies for Emotional/Behavioral Regulation (ICC = 0.06, α^2 = 21.42, p = .029). However, classroom effects were marginal and not significant for students' adjusted total SEL Skills (ICC = 0.03, α^2 = 15.52, p = .159) and Cooperative Behaviors (ICC = 0.001, α^2 = 11.14, p = .432). Lastly, as shown in Table 5, our analysis of differential effectiveness by grade level indicated that the effectiveness of the SEL intervention significantly differed by classroom for students' Prosocial Skills (α_{01} = 0.48, *SE* = .20, p = .037). Descriptive statistics

and Cohen's *d* by grade level are reported in Table 5. As seen in Table 5, the SEL intervention was more effective for students in Grade 3 compared to Grades 2, 4, and 5.

Table 5. Differential Effectiveness of SEL Intervention by Grade Level

	Estimate	*SE*	*t*-ratio	*p*
Cooperative Behaviors				
Intercept	11.52	0.19	61.85	<.001
Grade Level	0.20	0.17	1.15	.276
Pre-SEL	0.19	0.10	1.93	.080
Prosocial Skills				
Intercept	7.70	0.23	33.79	<.001
Grade Level	0.48	0.20	2.40	.037
Pre-SEL	0.09	0.10	0.93	.371
Strategies for Emotional/Behavioral Regulation				
Intercept	18.96	0.51	37.00	<.001
Grade Level	0.52	0.46	1.14	.280
Pre-SEL	0.11	0.11	1.03	.327
Total Score				
Intercept	38.18	0.77	49.85	<.001
Grade Level	1.06	0.70	1.52	.159
Pre-SEL	0.15	0.12	1.29	.224

Climate and Related School-Level Outcomes: Descriptive Comparisons

Additionally, we examined the effectiveness of the intervention on school-level outcomes by evaluating (a) differences in teachers' report of school climate pre- and post-intervention, and (b) differences in rates of attendance, disciplinary, and achievement data. Pre- and post-intervention School Climate scores were 91.21 (*SD* = 6.45) and 96.75 (*SD* = 9.05), respectively, which represents a medium effect (Cohen's *d* = 0.50). Following a year of universal weekly SEL lessons, chronic absenteeism reduced from 23% the year prior to the intervention to 6% the intervention year. Incidents of disorderly conduct reduced from 16 major infractions the year prior to the study to 10 major infractions the intervention year. Similarly, overall student academic achievement based on standardized test scores improved from academic proficiency

rates of 42% to 71%. No other new academic or social–emotional interventions were introduced at the time of this study, although it is possible that other efforts were underway that led to this improvement.

Discussion and Implications

Largely, our findings did not provide statistically significant support for the effectiveness of the *Open Circle* universal intervention as it related specifically to sizeable increases in students' SEL skills in the first year of implementation across all grade levels, *schoolwide*, as examined further below. Indeed, differences between pre- and post-intervention scores indicated small effects of the *Open Circle* universal intervention across SEL outcomes. Although Cohen's *d* is extensively used to measure effect sizes in educational intervention research, Durlak (2009) recommends contextualizing effect sizes within the bigger context of intervention research to determine whether meaningful effects may be present despite small effect sizes. It is indeed possible that small effect sizes in SEL gains in settings such as elementary classrooms, where even little differences can have a potential for a meaningful impact, should not be dismissed as not having practical value in real educational settings (Durlak et al., 2011). It should also be noted that our study revealed promising results on other important outcomes, including increases in teacher perceptions of positive school climate or community, reductions in absenteeism, reductions in incidents of behavioral infractions, and overall improvement of academic achievement, thus providing a more nuanced evaluation of the potential effectiveness of the *Open Circle* intervention. In addition, we did find evidence of classroom effects, with classrooms accounting for 7% of the variability in students' adjusted prosocial skills and 6% of the variability in students' adjusted strategies for emotional/behavioral regulation. Although these classroom effects may appear small, the proportion of variability in group members' outcomes attributable to their classroom is sizeable compared to other sources of variability in students' SEL outcomes. Specifically, 6% explained variability in students' SEL outcomes is equivalent to a Cohen's *d* of .50, which is considered a medium effect (Wampold & Imel, 2015). Together, this evidence suggests that the *Open Circle* intervention may have the potential to meaningfully improve a range of relevant student and school outcomes and that the influence of the classroom dynamics on students' SEL outcomes is a sizeable effect.

To expand on the above finding, it is important to highlight that while *Open Circle* implemented in the first year did not lead to statistically significant results across all classrooms, there was significant improvement measured in single classrooms. This could be caused by variations in the curriculum by

grade level, developmental readiness and appropriateness of some content (significant findings were not detected in the lower grades), or other teacher implementation variables which were not measured in this study. We similarly found evidence for the effective applicability of the SEL intervention within the PBIS framework by grade level. Specifically, the intervention was more effective in increasing students' prosocial skills for third graders compared to second, fourth, and fifth graders. This is an important finding as it suggests that SEL interventions need to be designed with specific attention to students' developmental stage. It should be noted that interventions aiming to enhance students' SEL skills by applying a PBIS framework have not been studied sufficiently pertaining to potential effectiveness, and warrant additional examination (Barrett et al., 2018).

It is important to note that our results were not enough to support statistically significant gains in student social–emotional skills following the *Open Circle* intervention. Given the promising findings in contextual data following the intervention, including improved academic achievement, there might be several possible explanations for the lack of statistically significant gains in social–emotional skills. First, studies examining SEL interventions in elementary schools have pointed out that outcomes pertaining to one observer (e.g., teachers) may be quite different than those reported by other observers (e.g., parents; Catalano et al., 2003), highlighting the importance of multimethod and multireport assessment. Including parent and community feedback in evaluating interventions at the school level is an important recommendation and necessitates the development of tools designed with these stakeholders in mind. As we only measured SEL skills through teacher report, it is possible that a multipronged evaluation of relevant skills might have revealed different findings. Additionally, as our intervention occurred over the duration of a year, reflecting a multicomponent approach integrated with PBIS, it is possible that it took longer for SEL to be fully embedded, potentially creating sleeper effects that might have emerged at a later date. Another important consideration is that given our lack of control classrooms, it was impossible to establish the directional movement pertaining to student SEL skills over the course of the year had they not received this intervention. It is therefore possible that while SEL skills did not drastically improve, maintenance of SEL skills in the span of a year and small improvements across strategies for emotional/behavioral regulation, cooperative behaviors, and prosocial skills may indeed be practically meaningful in the elementary classroom and have the potential to positively impact SEL growth across developmental stages. For example, student scores on Cooperative Behaviors at pre-test revealed a relatively high mean of 11.48 out of a total possible score of 15 and remained steady at post-test, at 11.50.

On the other hand, overall SEL skills increased from a total mean of 37.76 to a total of 38.38 in the span of the year-long intervention. Again, a more comprehensive measurement approach and the use of comparison groups might have lent itself to a more nuanced interpretation of students' pre- and post-social skills ratings.

Third, given the sizable influence of the classroom on students' SEL outcomes in this study, considering relevant classroom factors—such as classroom composition, classroom climate, and teacher–student engagement—might be an important step when implementing and evaluating SEL interventions delivered in classrooms. Although we included a teacher-based measure of school climate, research indicates classrooms are dynamic units with contextual factors implicated with significant group effects (Marsh et al., 2012), necessitating the inclusion of a range of data for holistic evaluation of SEL interventions. Although our climate measure included a subscale on student–teacher interactions, research suggests students' rating of school climate reveals unique variance not necessarily reflected in teacher ratings (Brand et al., 2008), further supporting the importance of supplementing measurement of classroom contextual variables by including student and parent reports. While *Open Circle* includes guidance on how teachers can integrate the taught SEL components throughout their day and communicate those new skills to families/caregivers, there is no specific measurement component that assesses family/caregiver engagement. Further, families and educators often use different terms to refer to the same or similar skills such as "following directions" and "compliance," or "staying calm" and "using self-control"; school staff can bridge these vocabulary differences by partnering with families and reinforcing SEL lessons and terminology in both home and school contexts (Miller et al., 2018). Conceptualizing engagement beyond teachers and students and incorporating assessment tools that capture family/caregiver engagement can provide valuable information on student, classroom, and community dynamics impacting SEL outcomes.

Another important implication pertains to our findings on differential effectiveness of the SEL intervention by grade level. The developmental match between the curriculum and the intended student population is an important factor, making it possible that an SEL intervention that is effective for third graders may not be similarly effective for fifth graders. While there is a large body of literature documenting the effectiveness of a variety of SEL interventions (Durlak et al., 2011; Taylor et al., 2017), less is known about who these interventions are effective for and how. Future research may benefit users by conducting moderator and mediator analyses to further understand the potential to improve the quality of SEL interventions applying a PBIS framework, targeting diverse social and emotional needs of elementary school students by grade level.

Limitations

Given the practical limitations of the school setting and the pilot nature of this evaluation study, we were not able to create a control condition and to blind teachers to the intervention. This limited our ability to control for important confounding variables, such as other school interventions that may affect students' SEL skills, limiting the generalizability of our results (De Meester et al., 2013; Gonzalez & Villalba, 2018). Measurement of dependent variables reflected teacher perceptions given a certain time frame. Indeed, as teachers invested significant time and energy in training and delivery, it is possible they were compelled to evaluate their school climate more positively following the intervention. It should be noted that teachers were trained on evaluating the implementation of the intervention and completing the associated surveys, a recommended strategy to minimize error and reduce teacher rater bias on social–emotional assessment (Shapiro et al., 2016). Nevertheless, future studies should include student and parent report of SEL and school climate to triangulate results, and longitudinal evaluation of relevant outcomes would be valuable, as well.

Conclusion

Results of the pilot study suggested that *Open Circle* is variably effective as a universal SEL curriculum integrated within PBIS. Specifically, the curriculum was more effective for Grade 3 students than other grade levels. The findings have important implications as SEL research and the field continue to move forward. Specifically, given limited school resources for program implementation, future research should investigate whether programs are most effectively delivered universally, in conjunction with the PBIS framework, and/or for particular ages or grade levels, and should identify salient contextual school and community variables that can provide a more comprehensive understanding of the outcomes impacted by SEL programming.

References

Abshier, D., & Raulerson, C. (2020). *Integrating social and emotional learning into your school-wide positive behavior interventions and supports framework*. Florida's Positive Behavior Support Project, University of South Florida. http://flpbis.cbcs.usf.edu/other/mental_health.html

Algozzine, B., Barrett, S., Eber, L., George, H., Horner, R., Lewis, T., & Sugai, G. (2014). *School-wide PBIS Tiered Fidelity Inventory*. OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports. https://www.pbis.org/resource/tfi

Bardhoshi, G., McDaniel, S. C., Um, B., & Kivlighan, D. M. (2022). Validation of the Social Emotional Learning Skills Class Assessment (SEL-CA). *School Community Journal, 32*(2), 41–56. https://www.schoolcommunitynetwork.org/SCJ.aspx

Barrett, S., Eber, L., McIntosh, K., Perales, K., & Romer, N. (2018). *Teaching social–emotional competencies within a PBIS framework*. OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports. https://www.pbis.org/resource/teaching-social-emotional-competencies-within-a-pbis-framework

Bradshaw, C., Zmuda, J., Kellam, S., & Ialongo, N. (2009). Longitudinal impact of two universal preventive interventions in first grade on educational outcomes in high school. *Journal of Educational Psychology, 101*, 926–937.

Brand, S., Felner, R. D., Seitsinger, A. B., & Bolton, N. (2008). A large scale study of the assessment of the social environment of middle and secondary schools: The validity and utility of teachers' ratings of school climate, cultural pluralism, and safety problems for understanding school effects and school improvement. *Journal of School Psychology, 46*(5), 507–535.

Bruhn, A. L., & McDaniel, S. C. (2020). Tier 2: Critical issues in systems, practices, and data. *Journal of Emotional and Behavioral Disorders, 29*(1), 34–43.

Catalano, R. F., Mazza, J. J., Harachi, T. W., Abbott, R. D., Haggerty, K. P., & Fleming, C. B. (2003). Raising healthy children through enhancing social development in elementary school: Results after 1.5 years. *Journal of School Psychology, 41*(2), 143–164.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Routledge Academic.

Collaborative for Academic, Social, and Emotional Learning (CASEL). (2020). *Fundamentals of SEL.* https://casel.org/fundamentals-of-sel/

Collaborative for Academic, Social, and Emotional Learning (CASEL). (2013). *Effective social and emotional learning programs: Preschool and elementary school edition*. https://files.eric.ed.gov/fulltext/ED581699.pdf

Cook, C. R., Frye, M., Slemrod, T., Lyon, A. R., Renshaw, T. L., & Zhang, Y. (2015). An integrated approach to universal prevention: Independent and combined effects of PBIS and SEL on youths' mental health. *School Psychology Quarterly, 30*(2), 166–183.

De Meester, F., Van Dyck, D., De Bourdeaudhuij, I., Deforche, B., & Cardon, G. (2013). Do psychosocial factors moderate the association between neighborhood walkability and adolescents' physical activity? *Social Science & Medicine, 81*, 1–9.

Denham, S. A., Bassett, H. H., & Zinsser, K. (2012). Early childhood teachers as socializers of young children's emotional competence. *Early Childhood Education, 40*, 137–143.

Domitrovich, C. E., Bradshaw, C. P., Poduska, J. M., Hoagwood, K., Buckley, J. A., Olin, S., Romanelli, L. H., Leaf, P. J., Greenberg, M. T., & Ialongo, N. S. (2008). Maximizing the implementation quality of evidence-based preventive interventions in schools: A conceptual framework. *Advances in School Mental Health Promotion: Training and Practice. Research Policy*, *1*(3), 6–28.

Durlak, J. A. (2009). How to select, calculate, and interpret effect sizes. *Journal of Pediatric Psychology*, *34*(9), 917–928. https://doi.org/10.1093/jpepsy/jsp004

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405–432.

Garibaldi, M., Ruddy, S., Kendziora, K., & Osher, D. (2015). Assessment of climate and conditions for learning. In J. A. Durlak, C. P. Domitrovich, R. E. Weissberg, & T. P. Gullotta (Eds.), *Handbook of social and emotional learning: Research and practice* (pp. 348–360). Guilford Press.

Gonzalez, L. M., & Villalba, J. A. (2018). Initial evaluation of a Latina/o parent college planning program: "It changed my life and my child's life." *School Community Journal, 28*(1), 145–166. https://www.adi.org/journal/2018ss/GonzalezVillalbaSpring2018.pdf

Greenberg, M. T., Weissberg, R. P., O'Brien, M. U., Zins, J. E., Fredericks, L., Resnik, H., & Elias, M. J. (2003). Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning. *American Psychologist, 58*(6–7), 466–474.

Gregory, A., Hafen, C., Ruzek, E., Mikami, A., Allen, J., & Pianta, R. (2016). Closing the racial discipline gap in classrooms by changing teacher practice. *School Psychology Review, 45*(2), 171–191.

Hawken, L. S., Adolphson, S. L., MacLeod, K. S., & Schumann, J. (2009). Secondary-tier interventions and supports. In W. Sailor, G. Dunlap, G. Sugai, & R. Horner (Eds.), *Handbook of positive behavior support* (pp. 395–420). Springer.

Hennessey, B. A. (2007). Promoting social competence in school-aged children: The effects of the Open Circle program. *Journal of School Psychology*, *45*(3), 349–360.

January, A. M., Casey, R. J., & Paulson, D. (2011). A meta-analysis of classroom-wide interventions to build social skills: Do they work? *School Psychology Review, 40*(2), 242–256.

Kim, J., & Gentle-Genitty, C. (2020). Transformative school–community collaboration as a positive school climate to prevent school absenteeism. *Journal of Community Psychology*, *48*(8), 2678–2691.

Kraft, M. A., Marinell, W. H., & Shen-Wei Yee, D. (2016). School organizational contexts, teacher turnover, and student achievement: Evidence from panel data. *American Educational Research Journal, 53(5*), 1411–1449.

Lewis, T. J., & Sugai, G. (1999). Effective behavior support: A systems approach to proactive schoolwide management. *Focus on Exceptional Children, 31,* 1–24.

Low, S., Smolkowski, K., & Cook, C. (2016). What constitutes high-quality implementation of SEL Programs? A latent class analysis of Second Step® implementation. *Prevention Science*, *17*(8), 981–991.

Marsh, H., Lüdtke, O., Nagengast, B., Trautwein, U., Morin, A., Abduljabbar, A., & Köller, O. (2012). Classroom climate and contextual effects: Conceptual and methodological issues in the evaluation of group-level effects. *Educational Psychologist, 47*(2), 106–124.

McDaniel, S. C., Bruhn, A. L., & Mitchell, B. S. (2015). A Tier 2 framework for behavior identification and intervention. *Beyond Behavior, 24*(1), 10–17.

Oberle, E., Domitrovich, C., Meyers, D., & Weissberg, R. (2016). Establishing systemic social and emotional learning approaches in schools: A framework for schoolwide implementation. *Cambridge Journal of Education, 46*(3), 277–297.

Rivas-Drake, D., Lozada, F. T., Pinetta, B. J., & Jagers, R. J. (2020). School-based social–emotional learning and ethnic–racial identity among African American and Latino adolescents. *Youth & Society, 52*(7), 1331–1354.

Shapiro, V. B., Kim, B. K., Accomazzo, S., & Roscoe, J. N. (2016). Predictors of rater bias in the assessment of social–emotional competence. *International Journal of Emotional Education, 8*(2), 25–44.

Stillman, S. B., Stillman, P., Martinez, L., Freedman, J., Jensen, A. L., & Leet, C. (2018). Strengthening social emotional learning with student, teacher, and schoolwide assessments. *Journal of Applied Developmental Psychology, 55*, 71–92.

Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: A meta-analysis of follow-up effects. *Child Development*, *88*(4), 1156–1171. https://doi.org/10.1111/cdev.12864

Voith, L. A., Yoon, S., Topitzes, J., & Brondino, M. J. (2020). A feasibility study of a school-based social emotional learning program: Informing program development and evaluation. *Child and Adolescent Social Work Journal, 37*, 329–342.

Wampold, B., & Imel, Z. (2015). *The great psychotherapy debate: The evidence for what makes psychotherapy work*. Routledge.

Wanless, S., & Domitrovich, B. (2015). Readiness to implement school-based social–emotional learning interventions: Using research on factors related to implementation to maximize quality. *Prevention Science, 16*(8), 1037–1043.

Zins, J. E., Weissberg, R. P., Wang, M. C., & Walberg, H. J. (2004). *Building academic success on social and emotional learning: What does the research say?* Teachers College Press.

Sara C. McDaniel is an associate professor of special education in the Department of Special Education and Multiple Abilities at the University of Alabama and is the Director of the Center for Interconnected Behavioral and Mental Health Systems (CIBMHS). The CIBMHS is a research center that engages in rigorous research in schools and focuses on supporting schools and districts in implementing Positive Behavioral Interventions and Supports (PBIS) and school-based mental health services. She conducts research and teaches in the areas of (a) PBIS; (b) classroom management assessment and coaching; (c) Tier 2 social, emotional, and behavioral supports; and (d) preventative treatments for diverse populations of students placed at high risk. Correspondence concerning this article may be addressed to Dr. Sara C. McDaniel, Box 870232, Tuscaloosa, AL 35487 or email scmcdaniel@ua.edu

Gerta Bardhoshi is an associate professor in the Department of Rehabilitation and Counselor Education at the University of Iowa and director of the school counseling program. Her research interests pertain to designing and evaluating interventions that improve social–emotional outcomes in youth, as well as evaluating psychometric tools relevant to counseling.

Martin Kivlighan is an assistant professor in psychological and quantitative foundations at the University of Iowa. He conducts research across quantitative methods approaches and specifically for counseling and mental health interventions.